Grid Automation
Protection Automation Control

Firmware/Software Release Note

Date: **Dec 2021** Distribution: **Public** Reference: MU320E-2021-1

MU320 Extended Configurator

v 4.1.1 - Dec 2021

Key new features

- None

Other new features

- None

Notable defect fixes

- Fixed the configuration converter (Update CID or in the Firmware Update) to not remove datasets with FCD or structured data.

Firmware compatibility

- MU320 firmware versions 04AXX.

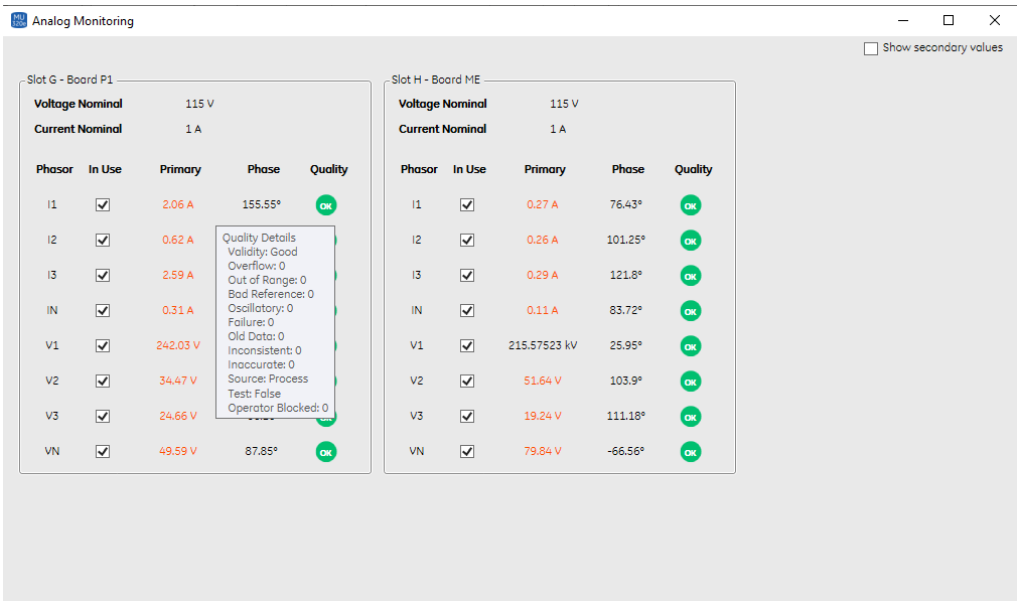
Upgrade procedure

- If there already is a MU320 Extended Configurator installed, it must be removed before installation of the new version.
- Upgrading to MU320 Extended Configurator can be done by executing “bin\setup.exe”, after extracting the “MU320E-configurator.install-4.1.1.zip” file.

v 4.1.0 - Dec 2021

Key new features

- Analog Monitoring
  Added support to monitor the signals parameters (magnitude and phase) for each electrical signal (voltage and current) connected to the available analog channels. When the value is under 5% and the channel is selected as “In Use”, the measure is highlighted in ORANGE.

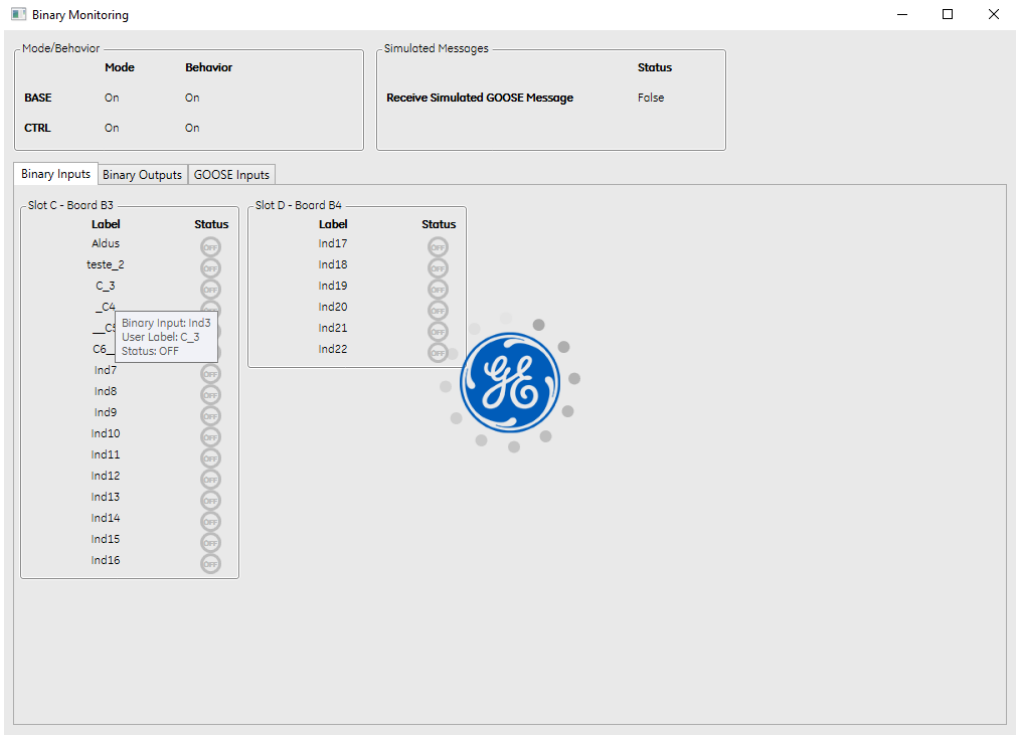


For each monitored and used analog channel, the user will see the validity field of its quality attribute. When Validity equals VALID, then the text is highlighted in GREEN, otherwise for QUESTIONABLE and INVALID the text is highlighted in ORANGE. Out of range is never displayed here.

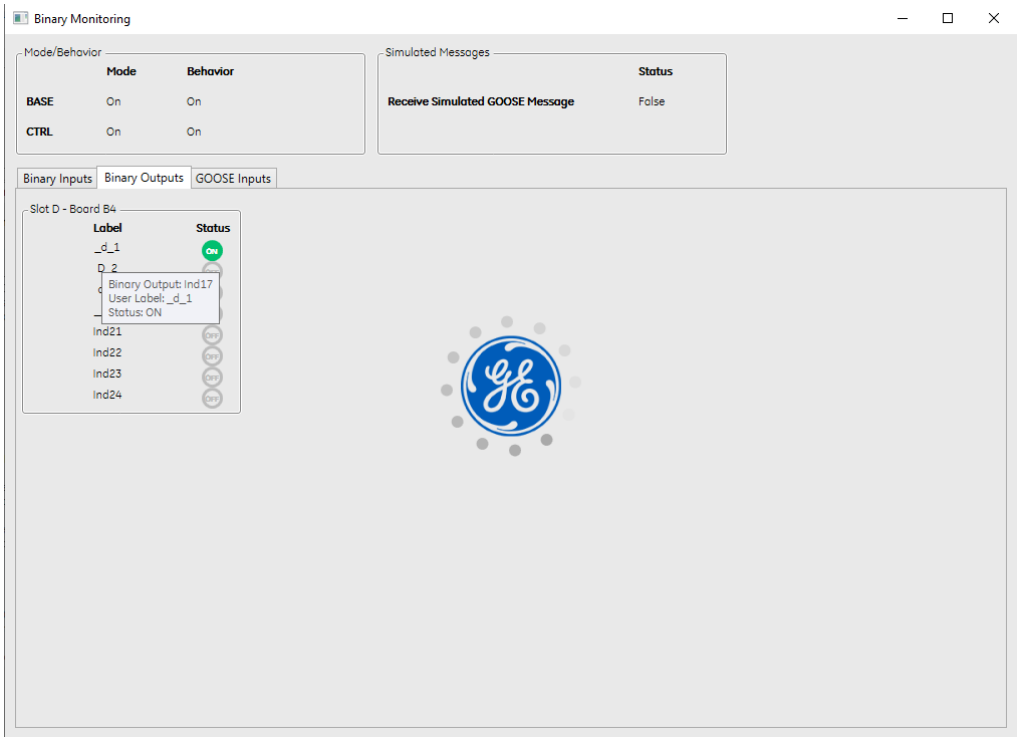
Data are updated each 5 seconds.

- Binary Monitoring
  Added support to verify the current state of each available Binary Event (Input/Output and GOOSE) and see the MU/LD Mode/Behavior status and Simulation State. Data are updated each 5 seconds.

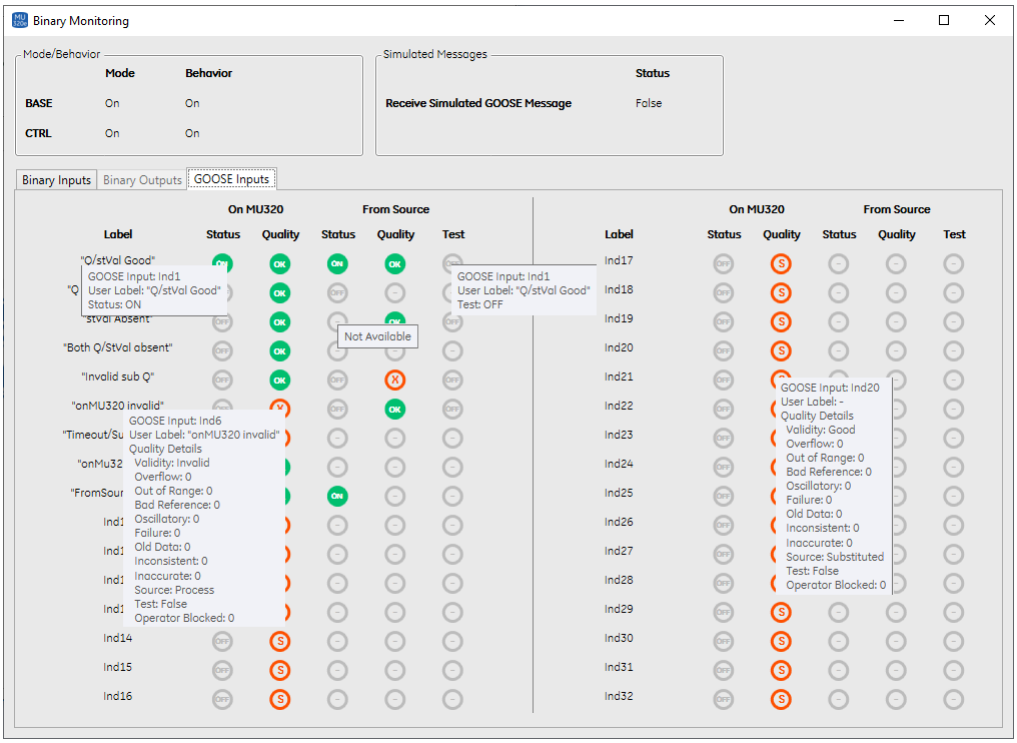
Binary Inputs



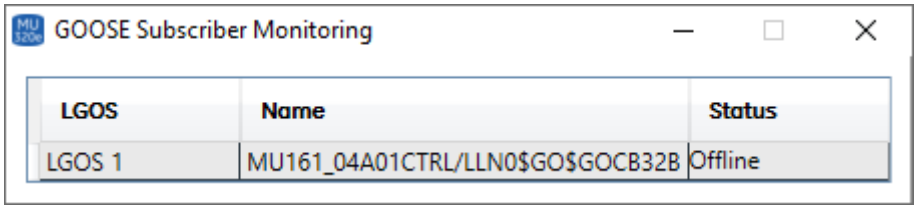
Binary Outputs



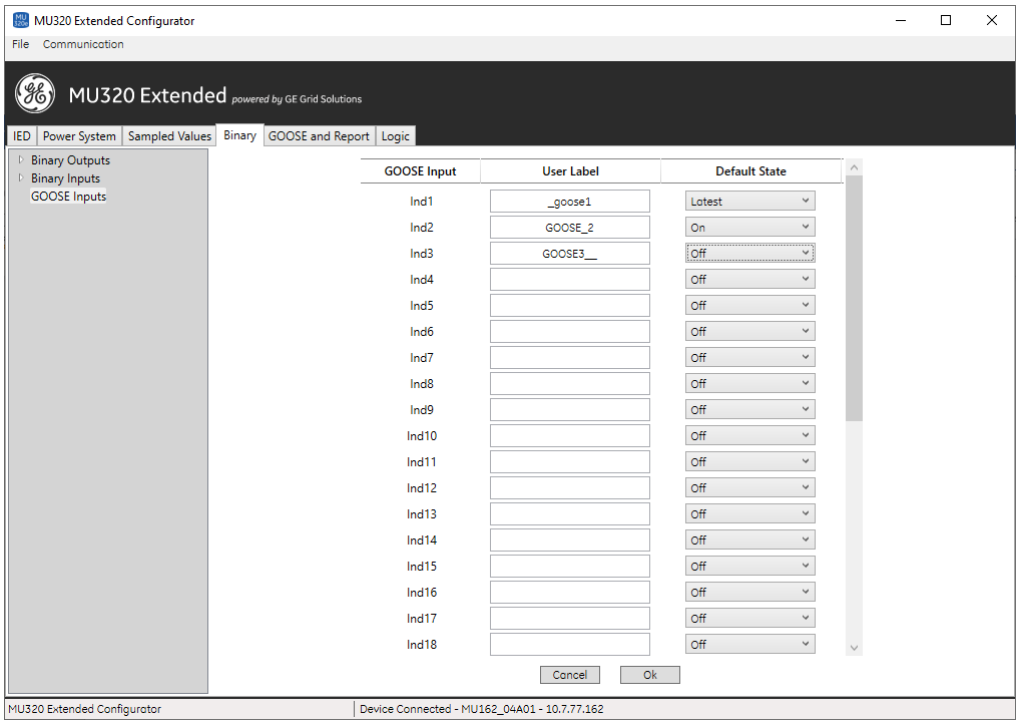
GOOSE Inputs



- GOOSE Subscriber monitoring
  Allows user to see if the IED is receiving messages from a subscribed GOOSE Publisher. Data are updated each 30 seconds



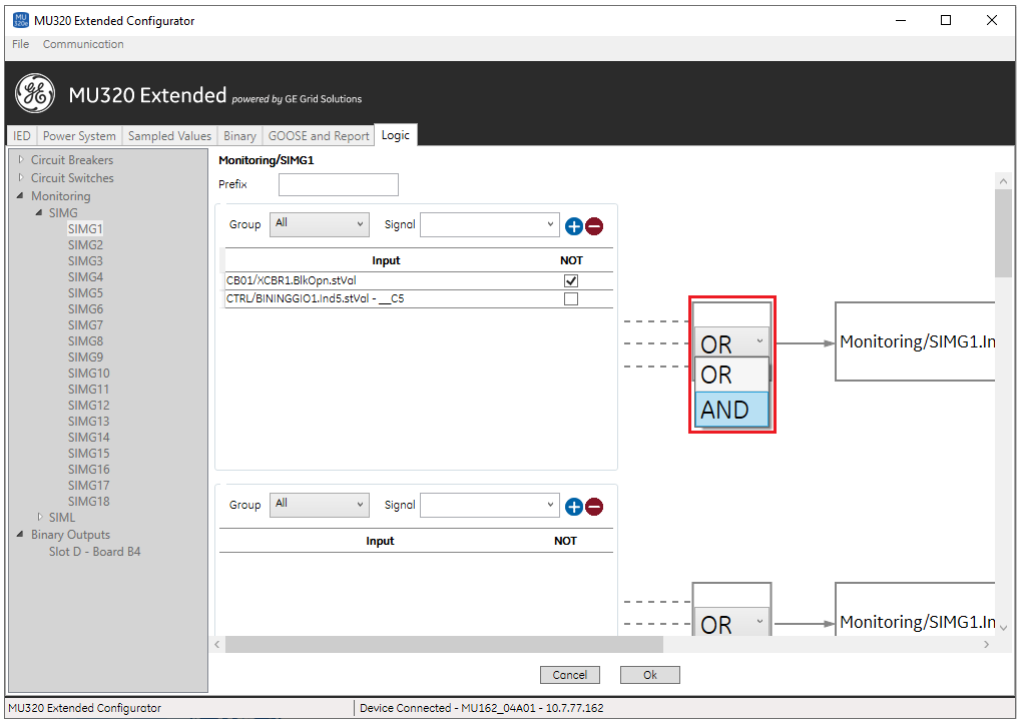
- GOOSE Inputs - Default State definition
  Allows user to define the default status of a GOOSE Input in absence of the respectively GOOSE message.



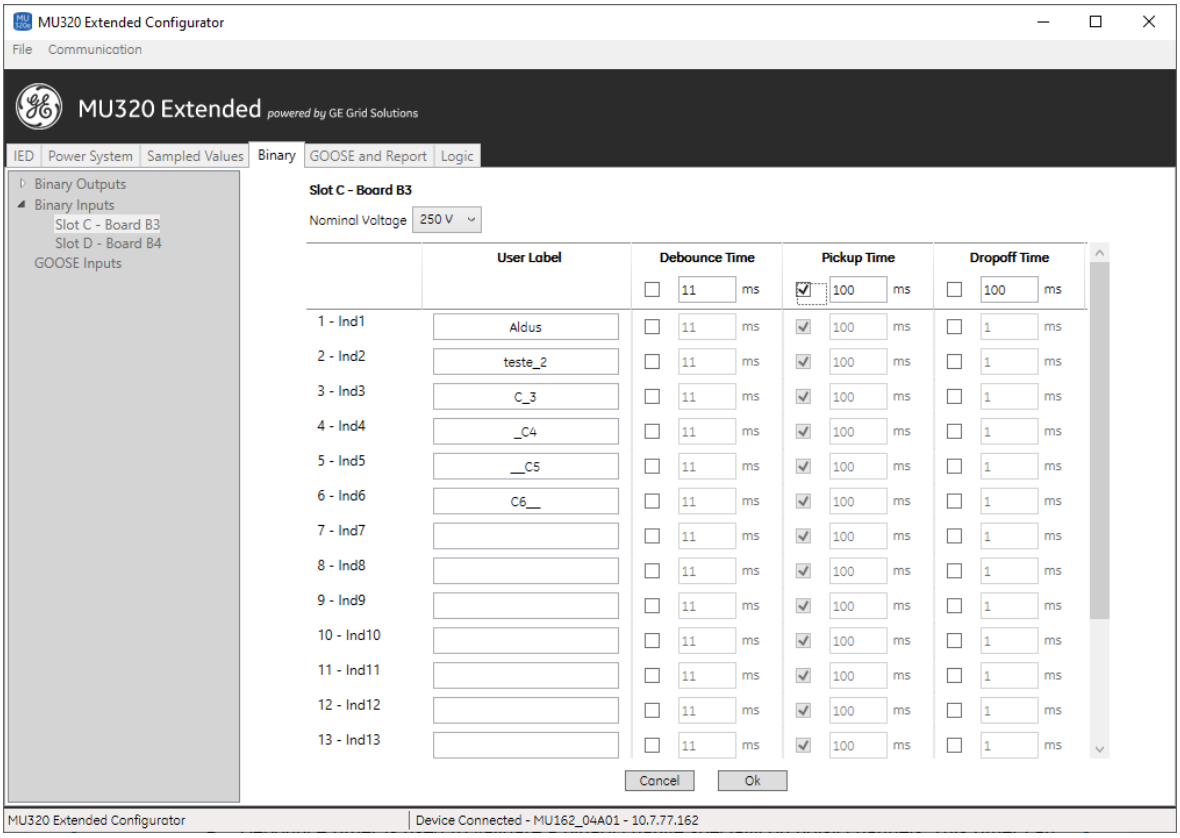
- With ON default value selected, in the absence of GOOSE Messages, then the Related GOOSE Input shall be set to ON disregarding of its current state.
- With OFF default value selected, in the absence of GOOSE Messages, then the Related GOOSE Input shall be set to OFF disregarding of its current state.
- With LATEST default value selected, in the absence of GOOSE Messages, then the Related GOOSE Input shall not change its state, following the latest received state from the subscribed GOOSE Message.

For users who migrate from older firmware version to 04A01, the default state of the GOOSE input will remain "**Latest**". New configurations will have the GOOSE default state "**Off**" as standard.

- Logic - Possibility to Change from OR to AND
  Allows user to change the logical OR gate to a logical AND gate to associate binary information for controlling Circuit Breakers, Circuits Switches, Monitoring and Binary Outputs.



- Binary Input Setting - Timer Configuration
  Allows to set timers (debounce, pickup and dropoff) for each binary input available. It is possible to enable or disable all debounce, pickup and dropoff timers separately. When timer is enabled, the global value is applied for all inputs.

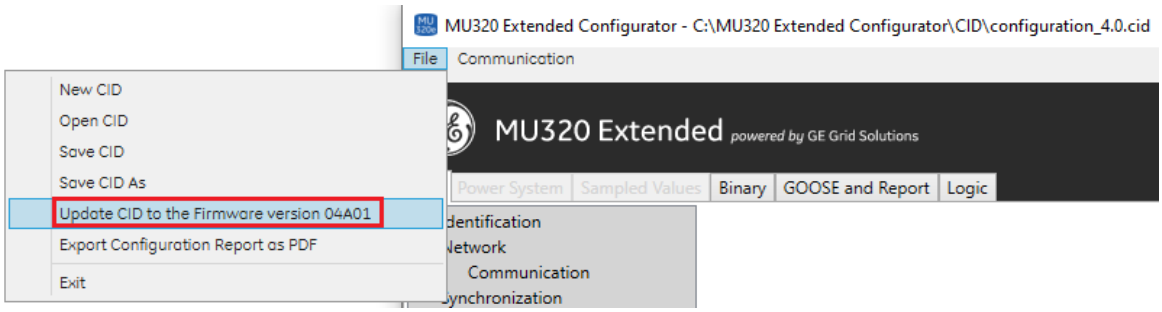


- Debounce timer is used to validate a binary change specially on noisy channels. This timer can be set from 1ms to 1s with steps of 1ms.

- Pickup timer is used to delay the validation of a binary change from OFF to ON. This timer can be set from 1ms to 60s with steps of 1ms.

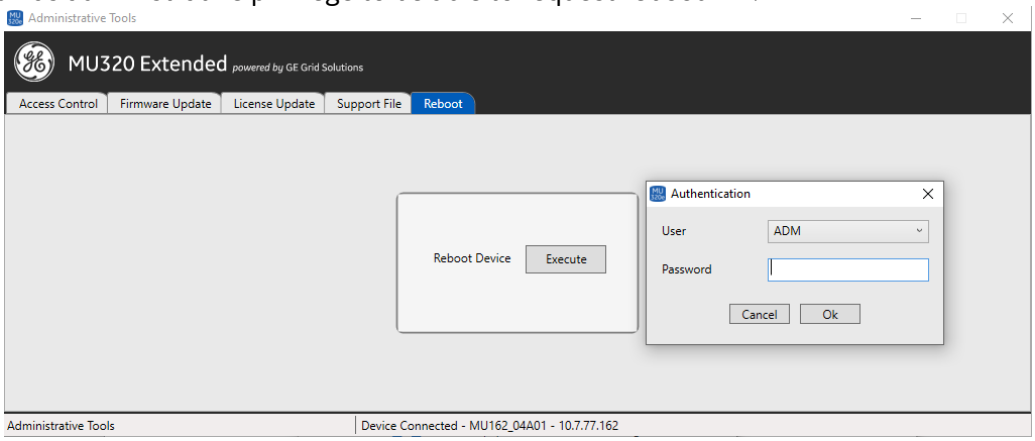
- Dropoff timer is used to delay the validation of a binary change from ON to OFF. This timer can be set from 1ms to 60s with steps of 1ms.

- Upgrade offline configuration
  Allows update a local configuration for the latest FW version that software has compatibility.

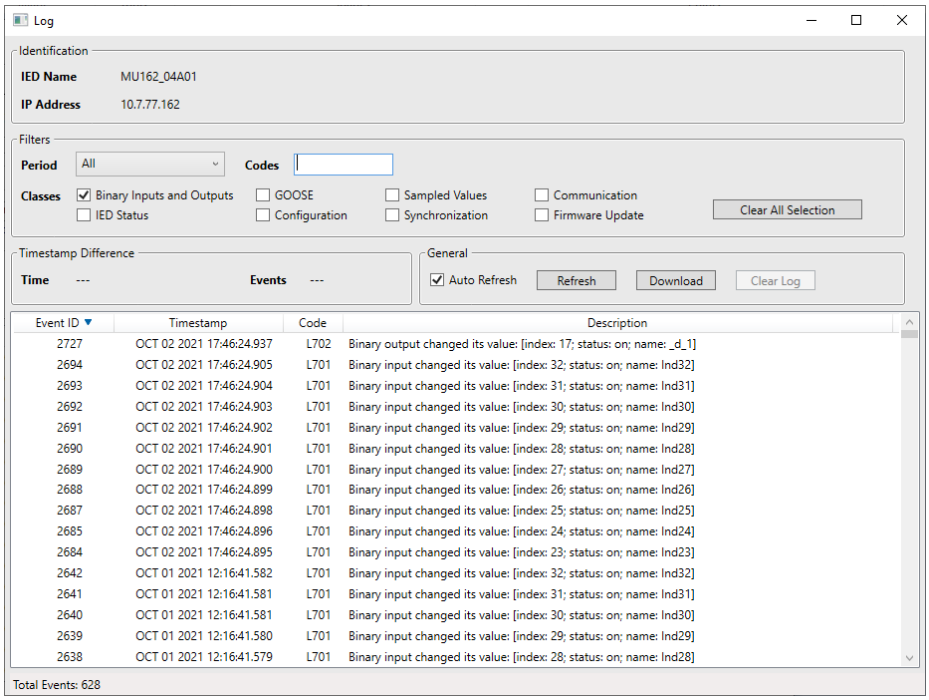


This option will be only enabled to configurations compatible with the Firmware version 04A00 (Configuration version 6.0). The configuration will be updated to be compatible with the Firmware version 04A01 (Configuration version 6.1).

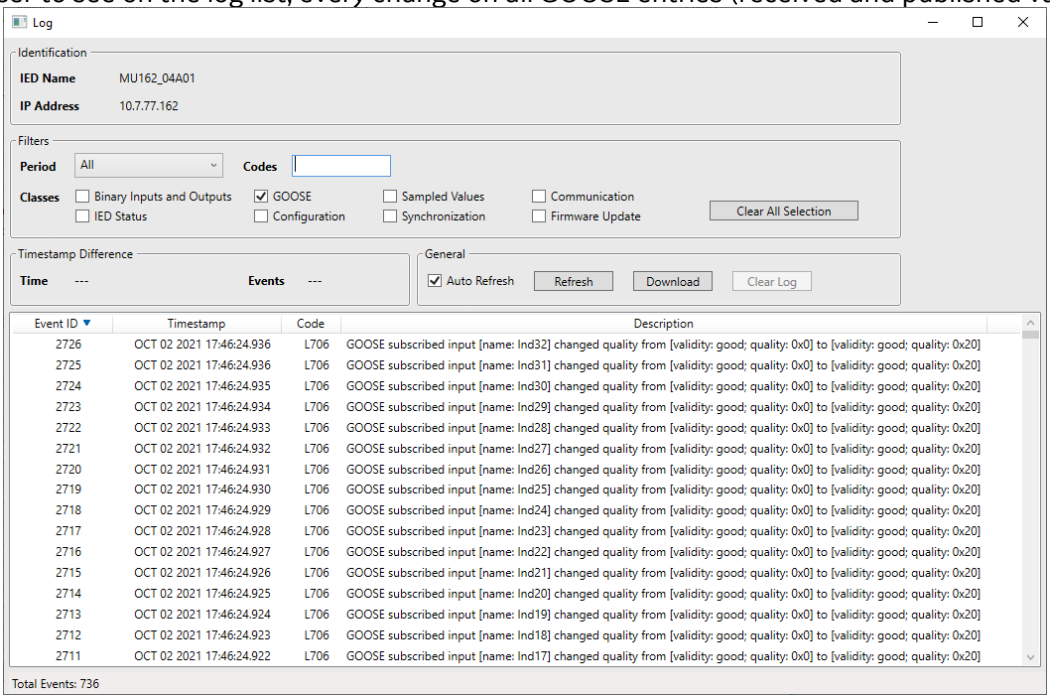
- Hardware Reboot
  Allows user requests a reboot operation to the IED from the Administrative Tools Interface.
  User need has administrative privilege to be able to request reboot IED.



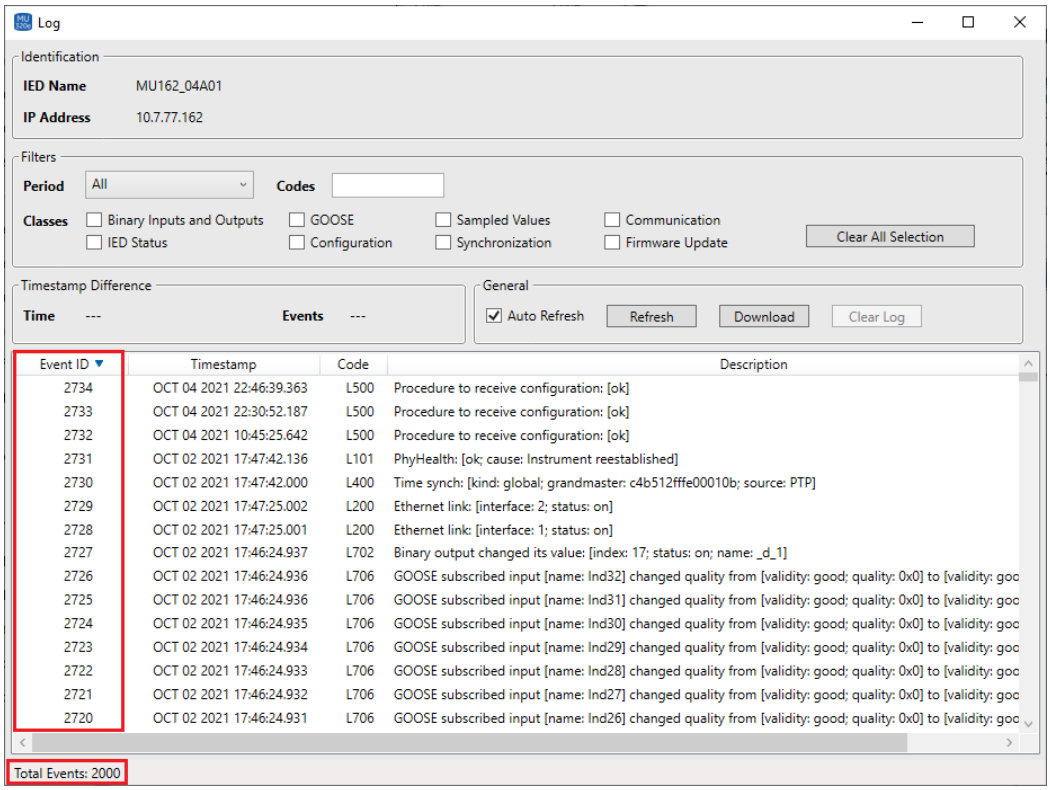
- I/O Event Log Registering
  Allows user to see on the log list, every change on all available physical binary Input and/or Output on the IED.



- GOOSE Message Event Registering
  Allows user to see on the log list, every change on all GOOSE entries (received and published values).

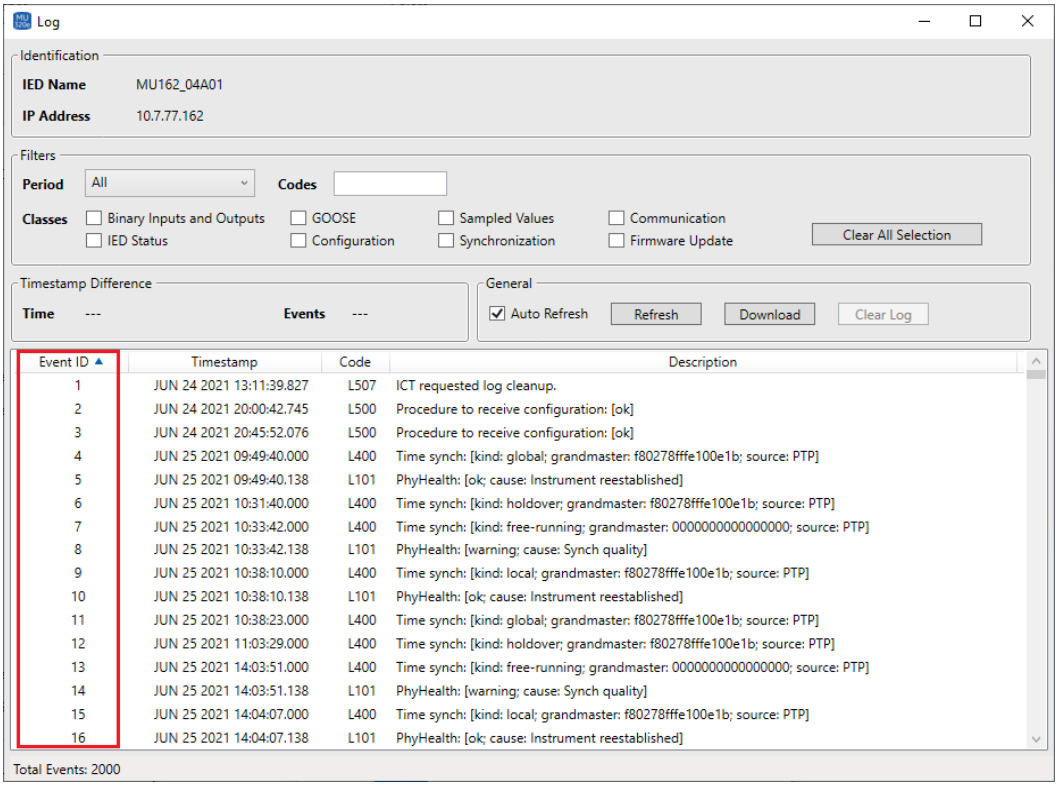


- Event Log Registering
  Added the Event ID on the registers list.



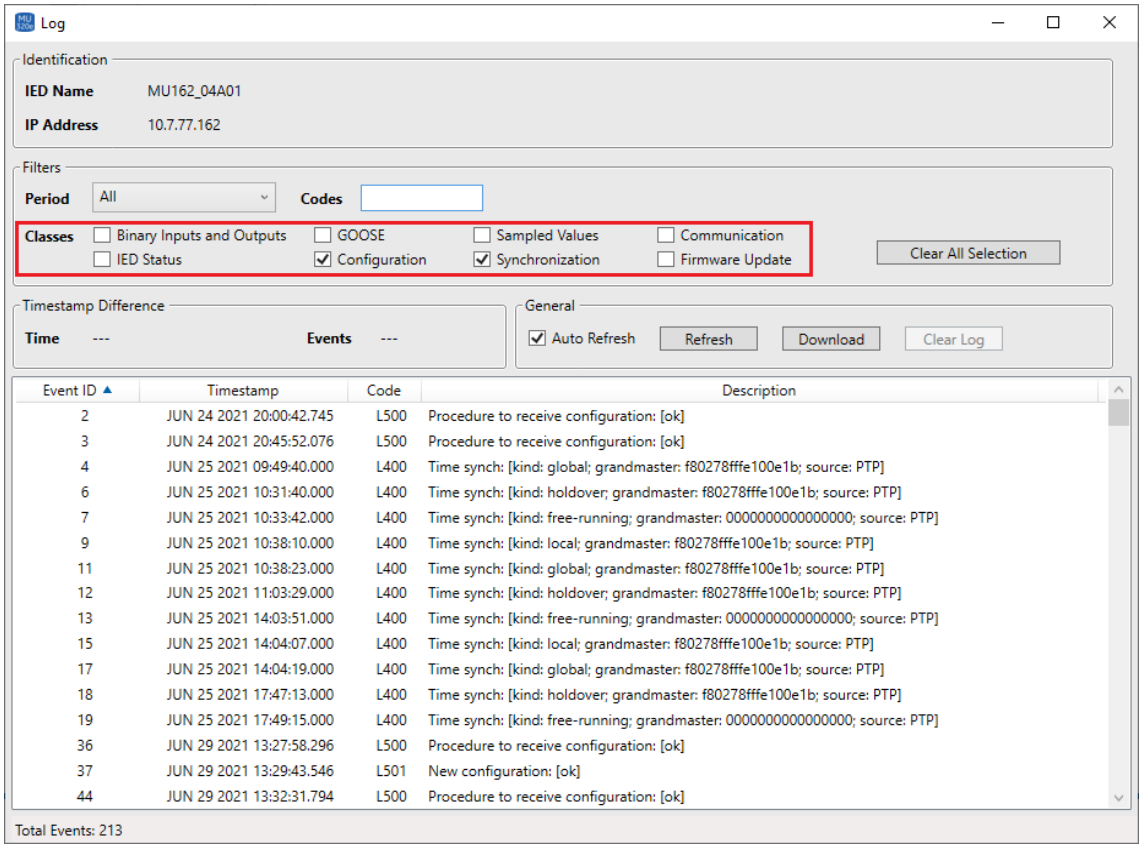
- The Event ID is unique and incremented monotonically (from 0 to 10000) for each new registered event. The after 10000 registers, the oldest 5000 registers are removed.
- The newest registered events are displayed on top of the list by default.
- The interface displays up to 2000 events in the window.
- The interface shows the total events displayed on the status bar.

- Event Log Sorting
  Added support to sorting data by the event ID in ascending and descending order.



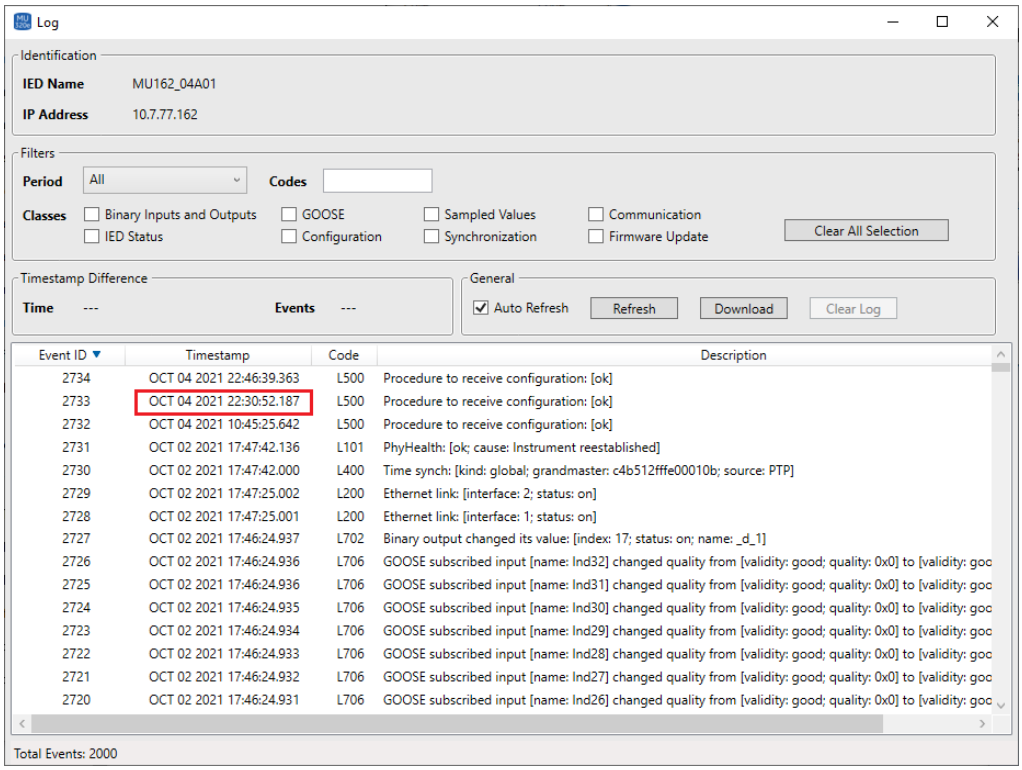
The sorting mechanism is applied to all "filtered" items (Period, Codes and Classes) and after that the interface will show up to 2000 events.

- Event Log Filtering
  Added support to filter registers by up to 8 classes. It is possible to clear all classes selection through the “Clear All Selection” button.

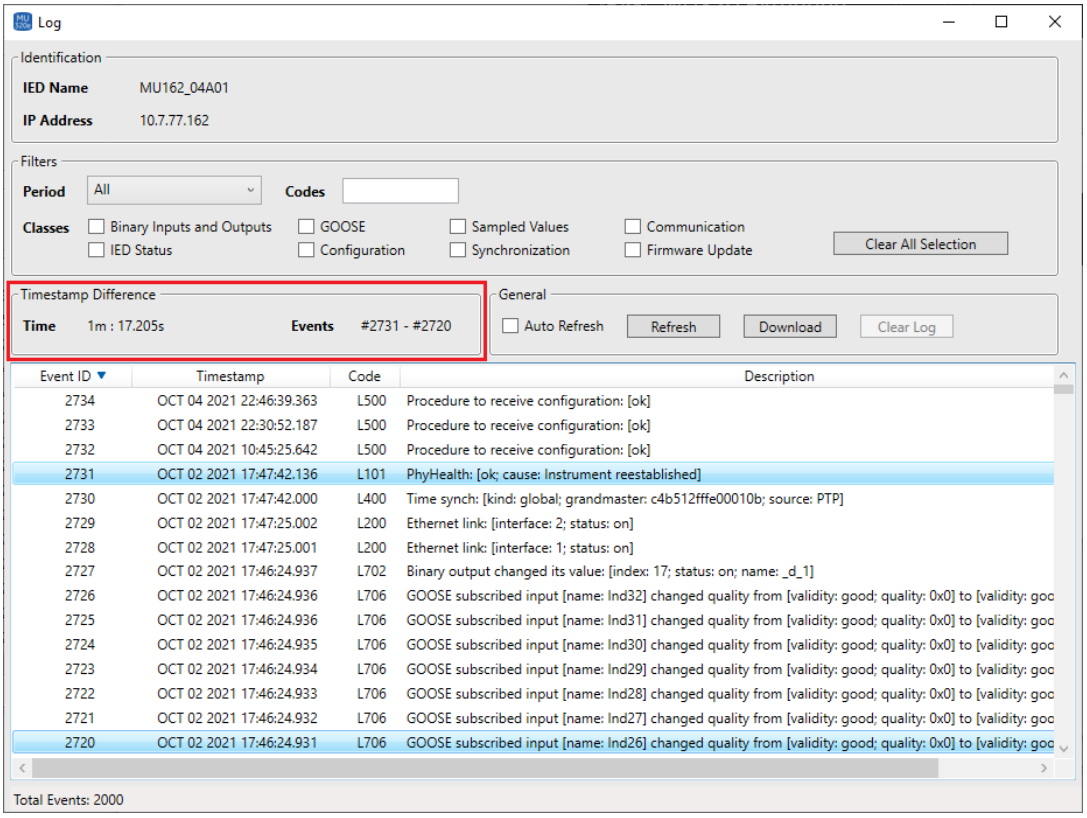


  - Binary Inputs and Outputs: events related to binary I/O change and actions of binary I/O debounce pickup and dropoff.
  - GOOSE: events related to GOOSE inputs change, GOCB status, and GOOSE Subscriber.
  - Sampled Values: sample quality and SV control block (profile, SVID, status and mode).
  - Communication: Ethernet link, IP address, Gateway and Netmask change, MMS connection status and Ethernet settings reset through loopback.
  - IED Status: events related to Power Up, PhyHealth, alarm relay, modules, internal voltage, temperature, passwords reset through loopback, IED reboot and log cleanup.
  - Configuration: events of receiving and sending configuration.
  - Synchronization: time sync and quality.
  - Firmware Update: events related to firmware update.

- Log - Display Timestamp Format
  Changed the timestamp format displayed on the Log view to "MON DD YYYY HH:MM:SS.FractionOfSecond".

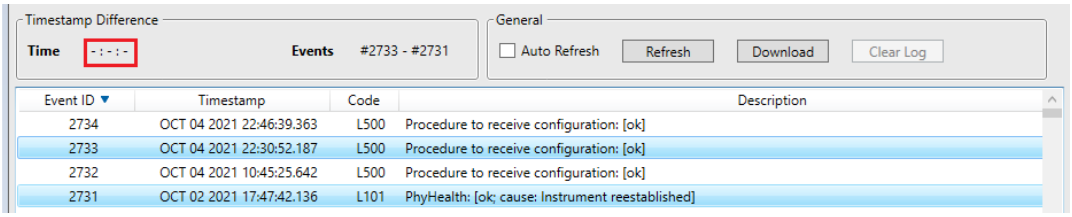


- Log - Display Timestamp Difference Between Two Events
  User can select two registered events from the log list and see the time stamp difference between them. The time stamp difference is displayed on the "HH:MM:SS.FractionOfSecond" format. The events ID related to time stamp difference are shown on interface.



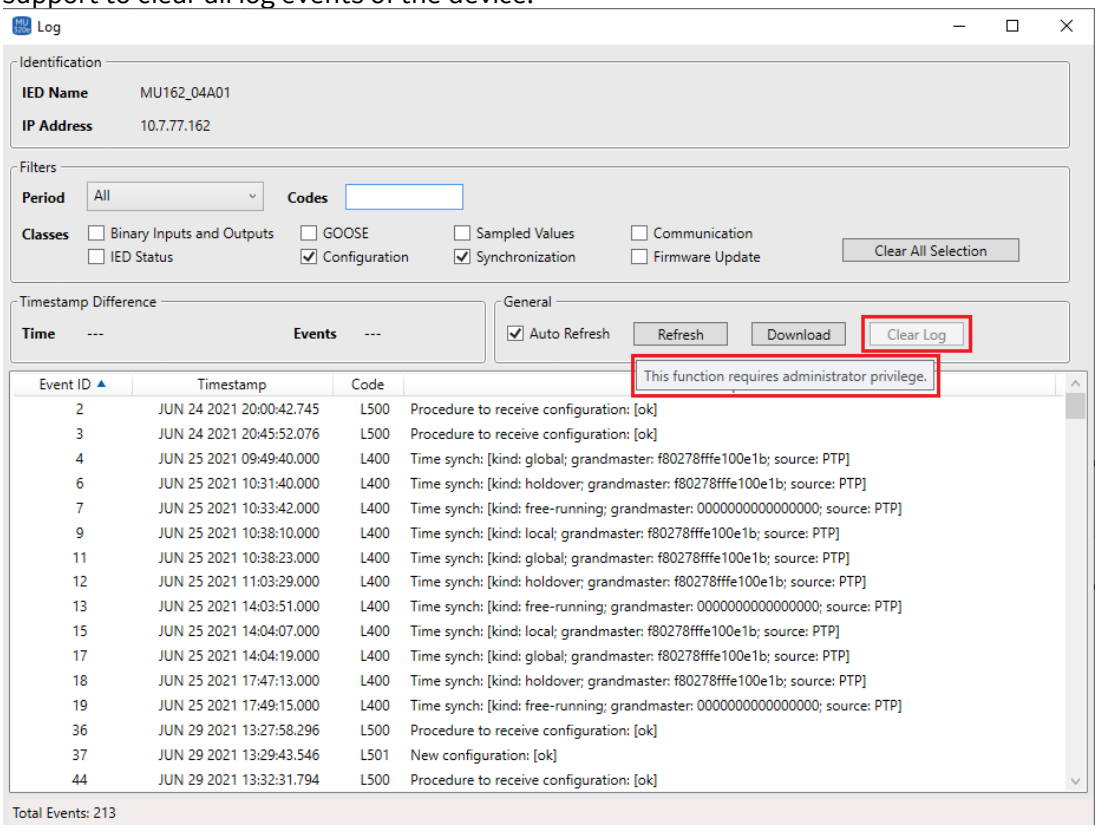
When the time stamp difference is greater than 1 hour (in absolute value), the ICT shows “- : - : " on the interface and a message is added in the software log (C:\MU320 Extended

Configurator\logs\logError.log).



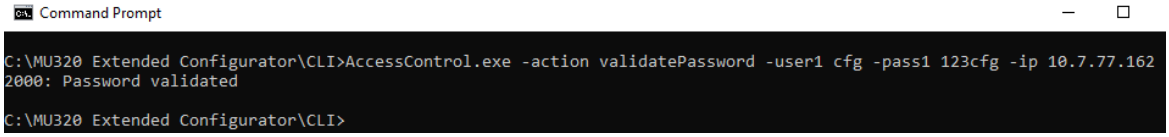
- The Log view is always opened with "Auto Refresh" option selected/enabled.
- The "Auto Refresh" button is unchecked when one or two items are selected.
- When "Auto Refresh" option is selected, the events list is updated, and the selected items/events are unselected.
- When "Refresh" button is clicked, the events list is updated, the "Auto Refresh" option is checked, and the selected items/events are unselected.
- It is not allowed select more than two events.
- The timestamp difference is always positive (newest event - oldest event).

- Clear Log List
  Added support to clear all log events of the device.



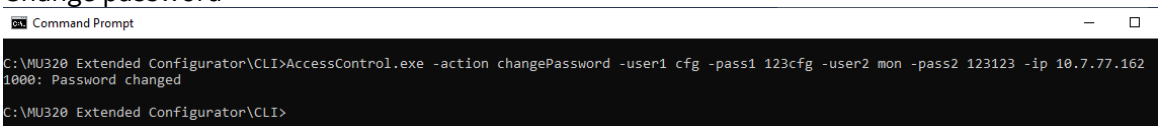
- The "Clear Log" button will be enabled when user is logged as administrator.
- The software will ask to user confirms the clear action.

- Access Control CLI
  Allows execute actions related to control access by command line. There are two actions:
  - Validate password



Parameter	Definition
<action>	The required action
<user1>	The username which password will be validated
<pass1>	The user's password
<ip>	The device's IP address

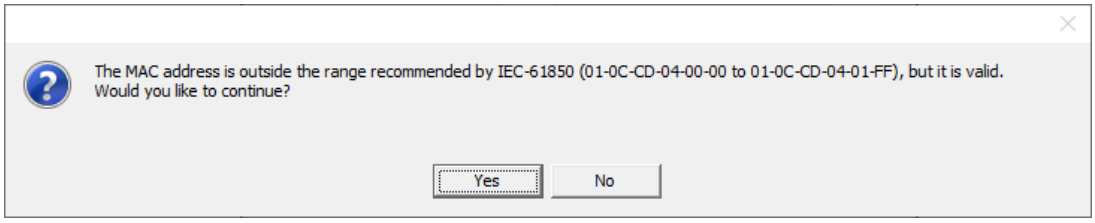
- Change password



Parameter	Definition
<action>	The required action
<user1>	The username used to connect to device
<pass1>	The password of username which is used to connect to device
<user2>	The username which password will be changed
<pass2>	The new password of <user2>
<ip>	The device's IP address

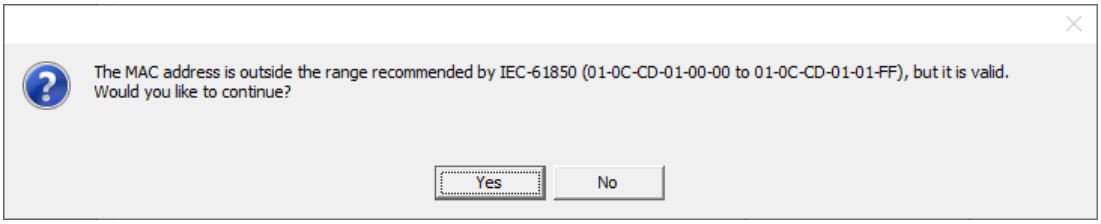
Other new features

- Extend allowed range of SV publisher MAC addresses
  User can freely configure all octets. If user configures the MAC address outside of the recommended range by IEC-61850, a message asking the user whether to continue or not is displayed:



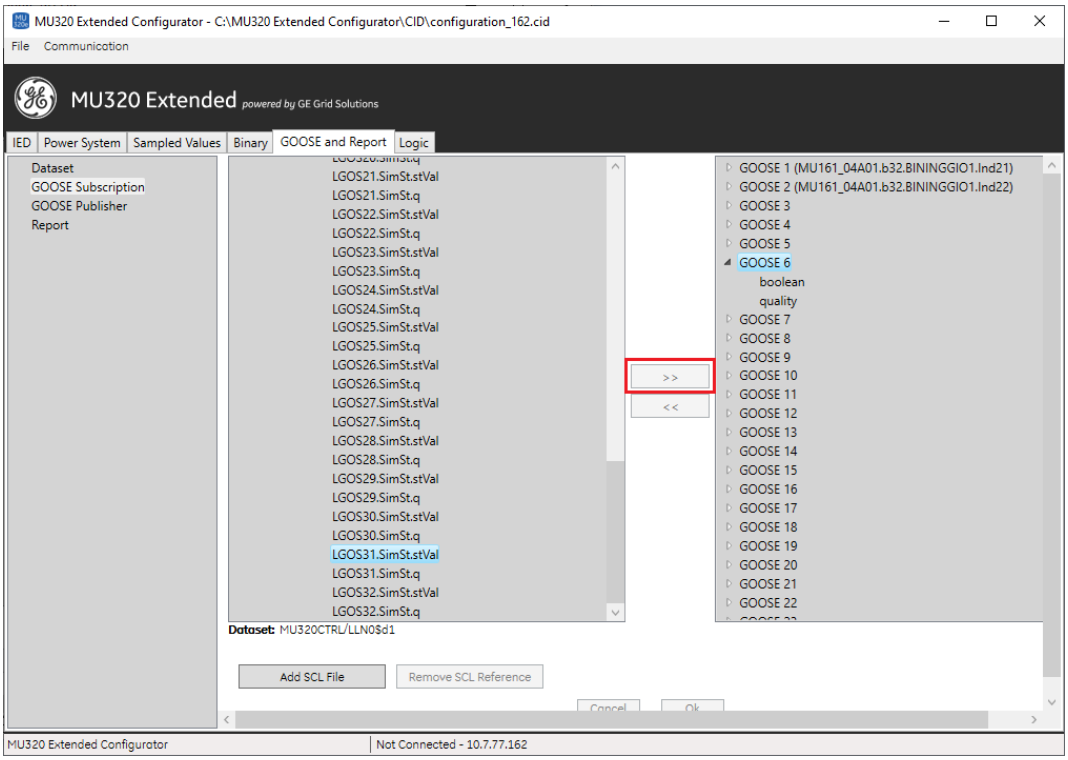
  If "Yes", the address is kept on the configuration; if "No", the edition interface keeps opened to user to change.

- GOOSE Publisher - Extend MAC Publisher Configuration
  Changed the message about MAC address outside the range recommended by the IEC-61850 on the GOOSE Publisher. If user configures the MAC address outside of the recommended range by IEC-61850, a message asking the user whether to continue or not is displayed:

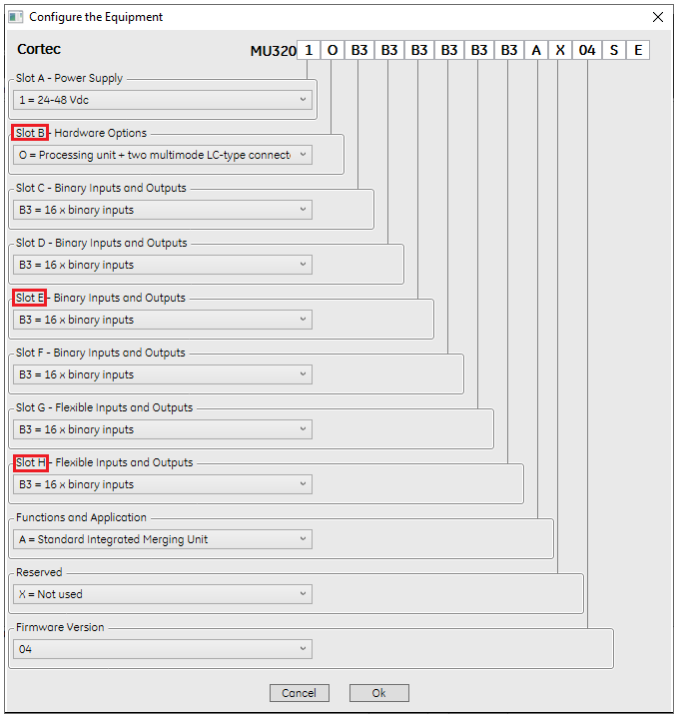


  If "Yes", the address is kept on the configuration; if "No", the edition interface keeps opened to user to change.

- ICT does not allow subscribe any Boolean beyond 32 in a published dataset.

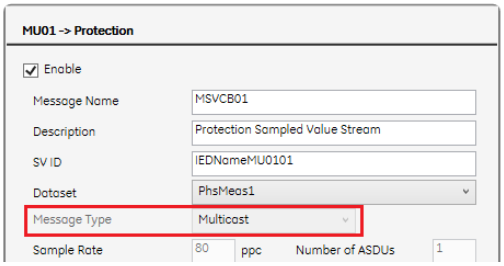


- Added the Slot identification in the "New" window options.



- PTP Monitoring
  User will no longer see the information on PTP Monitoring view if the IED is on free running synchronization state (NOK).

- SV Configuration
  Removed the “Unicast” option into Sample Values configuration. The “Message Type” field is disabled.

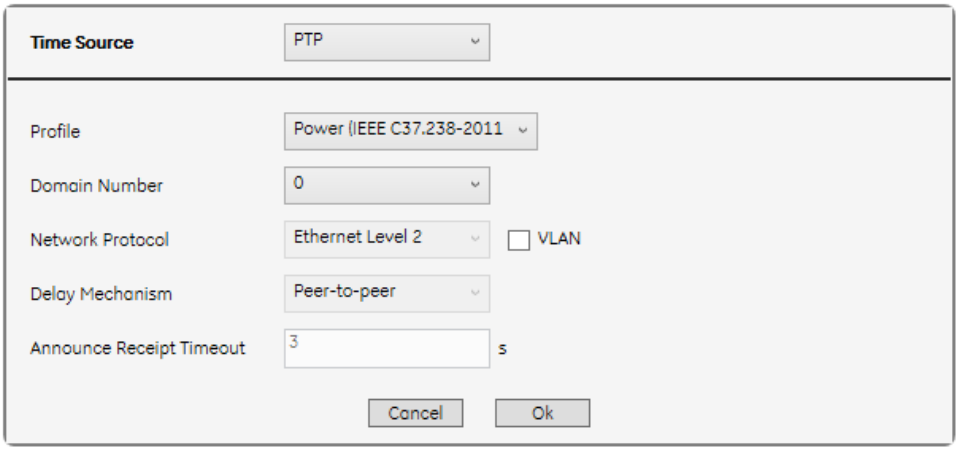


- Added installer compatible with the MiCOM S1 Agile.
  Installer to be integrated on the MiCOM S1 Agile package.

- Added option to double click to edit Datasets and Control Blocks.

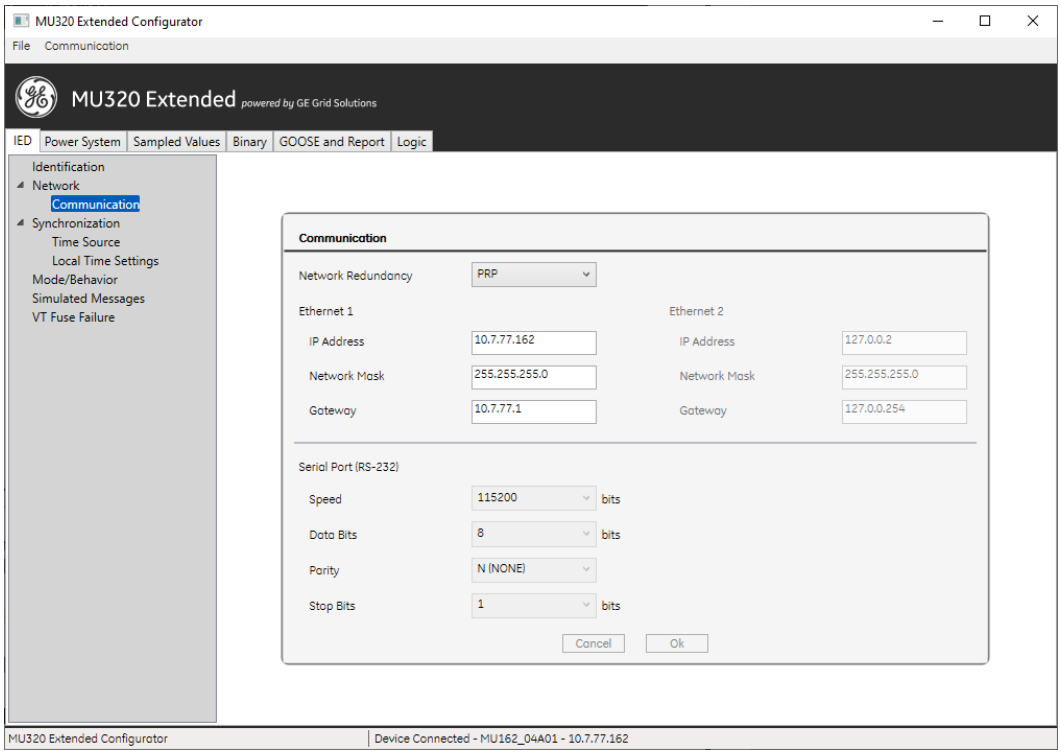
- Changed the Binary Inputs default voltage to 125 V when a new configuration is created.

- Simplified the PTP settings
  User will no longer see the P2P Default profile and will be able to choose the Power or Custom profile. Also, user will no longer see the "Operation Mode" and "Grandmaster Priority" fields. For these fields the default values are "Two-step" and 255, respectively. Changed the Power profile nomenclature.



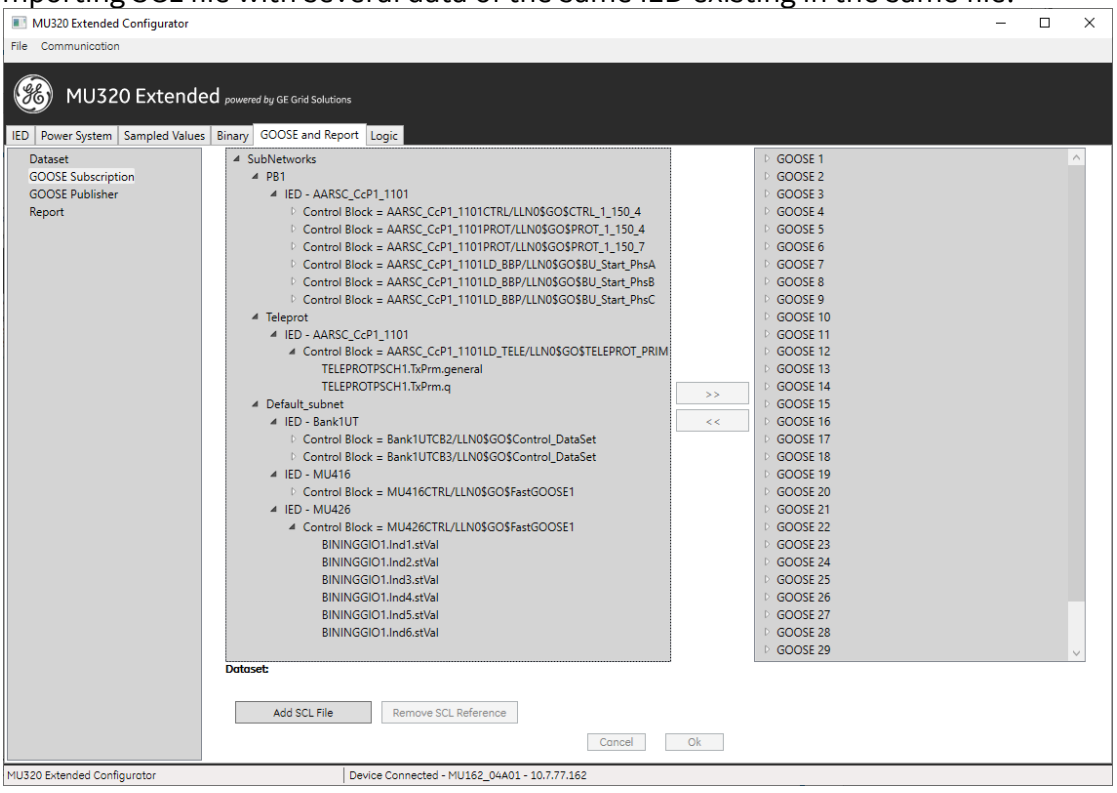
Notable defect fixes

- Fixed Ethernet validation on PRP mode when configuring two network interfaces on the same subnetwork.
  When user configures PRP mode and keeps the two interfaces on the same subnet, ICT changes the Ethernet 2 configuration to the default values:
  - IP Address: 127.0.0.2
  - Network Mask: 255.255.255.0
  - Gateway: 127.0.0.254



For communication without redundancy, the ICT will not allow user configures the IP address starting with "127" for Ethernet 1 and 2.

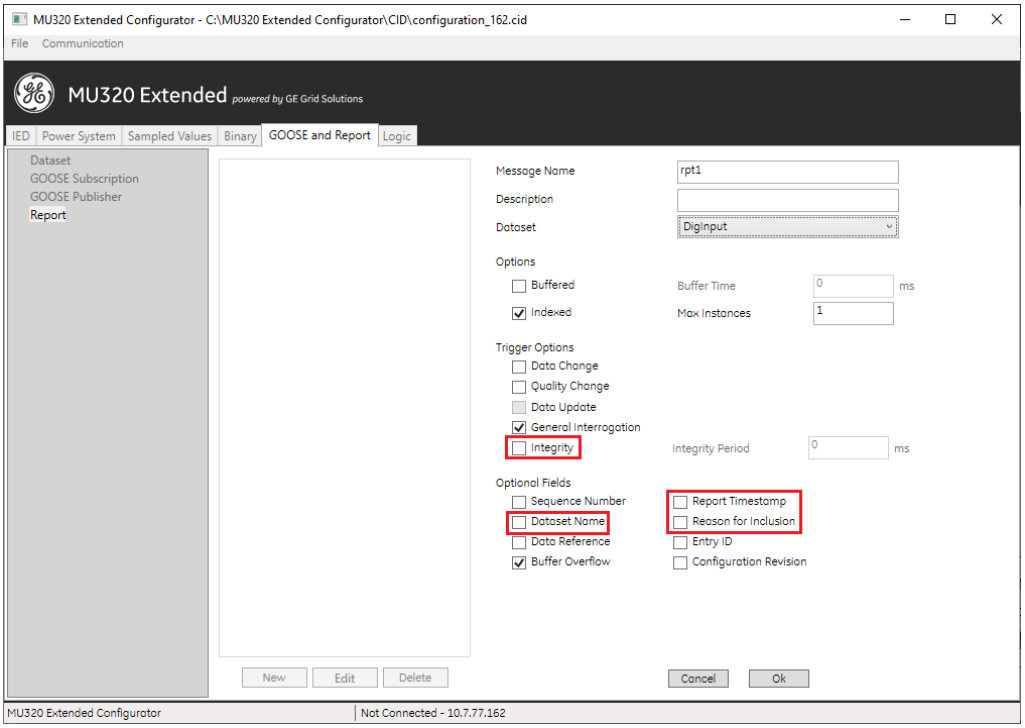
- Fixed importing SCL file with several data of the same IED existing in the same file.



- Fixed translations and interface adjustments on Time Source.
  Fixed the “Device Connected” label in status bar when language is changed. Adjusted the “Priority” field in the Portuguese language.

- Fixed the “swRev” info in configuration file to save firmware version instead of ICT version.

- Fixed mechanism to ask to save the configuration when closing the window if the user has only changed "Mod / Behavior" or "Simulated Messages" or "VT Fuse Failure" or "Report" or "Logic" data.
- Fixed some Portuguese translation texts.
- Fixed the word ‘Electric’ on the Identification interface.
- Replaced "Sistema de Potência Elétrico" by "Sistema Elétrico de Potência" in Portuguese language.
- Changed the default IED Name from "IEDName" to "MU320".
- Changed label "SMV ID" to "SV ID".
- Nomenclatures changed in the Reports window according to the IEC 61850-8-1 standard.



- Changed "VT Failure" to "VT Fuse Failure".
- Fixed serial communication process in two situations: wrong port and lost connection.
- Start, Status and Cortec windows layout fixed to show vertical scrollbar when scale is greater than 100%.
- Fixed AND label size on Logic tab: the “D” of “AND” was a little hidden.

Firmware compatibility

- MU320 firmware versions 04AXX.

Upgrade procedure

- If there already is a MU320 Extended Configurator installed, it must be removed before installation of the new version.
- Upgrading to MU320 Extended Configurator can be done by executing “bin\setup.exe”, after extracting the “MU320E-configurator.install-4.1.0.zip” file.

For questions or further product support, please contact the GE support team using:

Region	E-mail	Telephone
Global Contact Centre	GA.support@GE.com	+44 1785 250070
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